

REMARKS

Applicants have carefully considered the February 15, 2011 Office Action, and the comments that follow are presented in a bona fide effort to address all issues raised in that Action and thereby place this case in condition for allowance. Claims 1, 3, 7, 9, 10 and 12 are pending in this application. Claims 3, 6, 9, and 10 have been withdrawn from consideration pursuant to the lack of unity requirement. Upon allowance of generic claim 1, consideration of the withdrawn dependent claims is solicited. Entry of the present response is respectfully solicited. It is believed that this response places this case in condition for allowance. Hence, prompt favorable reconsideration of this case is solicited.

Claims 1, 4 and 5 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Tojo et al. WO 2003/105295 (the Examiner relying on the corresponding U.S. Pat. App. Pub. No. 2004/0206975 as the English language equivalent), in view of Lo (U.S. Pat. App. Pub. No. 2001/0042503, hereinafter "Lo"), Zhang, LPE Lateral Overgrowth of GaP (hereinafter "Zhang") and Kidoguchi (U.S. Pat. No. 5,751,013, hereinafter "Kidoguchi"). Applicants respectfully traverse.

Claim 12 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Tojo, Lo, Zhang and Kidoguchi, in view of Kitaoka (U.S. Pat. App. Pub. No. 2004/0183090, hereinafter "Kitaoka") and Bozler (U.S. Pat. No. 5,217,564, hereinafter "Bozler"). Applicants respectfully traverse.

Independent claim 1 describes:

A semiconductor light emitting device, comprising:  
a GaP substrate;  
an active layer located above said GaP substrate and including an n-type layer and a p-type layer of a compound semiconductor;  
an ELO layer located between said GaP substrate and said active layer and formed by epitaxial lateral growth; and  
a growth supporting layer located under and in contact with said ELO layer, wherein

said ELO layer fills a window portion formed in said growth supporting layer, and grows laterally abutting on the growth supporting layer, the growth supporting layer comprises an SiO<sub>2</sub> layer, and the ELO layer comprises an AlGaAs layer.

Applicants submit that the ELO layer of AlGaAs of the present claimed subject matter is neither disclosed nor suggested in the applied references.

In the Office Action at page 3, it was stated that:

Tojo discloses using a GaN ELO layer in a nitride based light emitting device, but fails to explicitly disclose making the ELO comprise AlGaAs with the substrate being GaP or when the light emitting device is AlGaInP based to achieve desired emission wavelength. This feature would have been obvious however when making the light emitting device other than Nitride based or when making the substrate GaP at least to insure better lattice matching with the GaP substrate or the non-GaN based light emitting device.

Specifically, Lo teaches using AlGaAs buffer dislocation confining layer over a GaP substrate for an AlGaInP light emitting device. See [0046].

Therefore, it would have been obvious for one of ordinary skill in the art at the time of this invention to have modified the GaN buffer in Tojo to be AlGaAs when implementing the structure in an AlGaInP light emitting device, as taught by Lo, wherein the AlGaAs layer would be the ELO layer.

Applicants traverse.

Tojo discloses an ELO layer of GaN and Lo discloses a buffer layer of AlGaAs. However, the buffer layer of Lo is **not** an ELO layer. An AlGaAs layer simply grown on a GaP substrate has many lattice defects (dislocations) caused by a lattice mismatch between the GaP substrate and the AlGaAs layer. Lo teaches that an InP substrate is bonded to a backside of the GaP substrate to reduce the number of the lattice defects in the AlGaAs layer grown on the GaP substrate. The teachings of Lo are completely different from using an ELO layer as disclosed in Tojo. The remaining applied references fail to cure the deficiency of Lo. Thus, even if the

applied references are combined as suggested by the Examiner, the claimed subject matter will not result. *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 USPQ2d 1434 (Fed. Cir. 1988). If any independent claim is non-obvious under 35 U.S.C. § 103(a), then any claim depending therefrom is non-obvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Further, the Examiner has not provided any evidence that there would be any obvious benefit in making such a modification of Tojo with Lo. *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 127 S. Ct. 1727, 82 USPQ2d 1385 (2007). As discussed above, Tojo discloses an ELO layer of GaN and Lo discloses a buffer layer of AlGaAs, however, the buffer layer of Lo is not an ELO layer. Accordingly, in view of the art recognized distinctions between these layers, the Office Action's substitution of objective evidence with mere speculation as to ensuring lattice matching falls short in supporting a legal conclusion of obviousness. Therefore, the rejection is not legally viable for at least this additional reason.

Moreover, a semiconductor light emitting device of the present subject matter includes the transparent GaP substrate and the ELO layer of AlGaAs (and an active layer) having superior crystallinity. As a result, the semiconductor light emitting device of the present subject matter can have high light emission intensity.

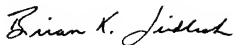
It is believed that all pending claims are now in condition for allowance. Applicants therefore respectfully request an early and favorable reconsideration and allowance of this application. If there are any outstanding issues which might be resolved by an interview or an Examiner's amendment, the Examiner is invited to call Applicants' representative at the telephone number shown below.

**Application No.: 10/594,742**

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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